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**Liu**

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(54) **SCREWDRIVER ROTATION STRUCTURE**

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***B25B 15/04*** (2006.01)
***B25B 23/00*** (2006.01)

(52) **U.S. Cl.**
CPC ..... ***B25B 15/04*** (2013.01); *B25B 23/0035* (2013.01)

(58) **Field of Classification Search**
CPC ..... B25B 15/04; B25B 23/0035
USPC ..... 81/59.1
See application file for complete search history.

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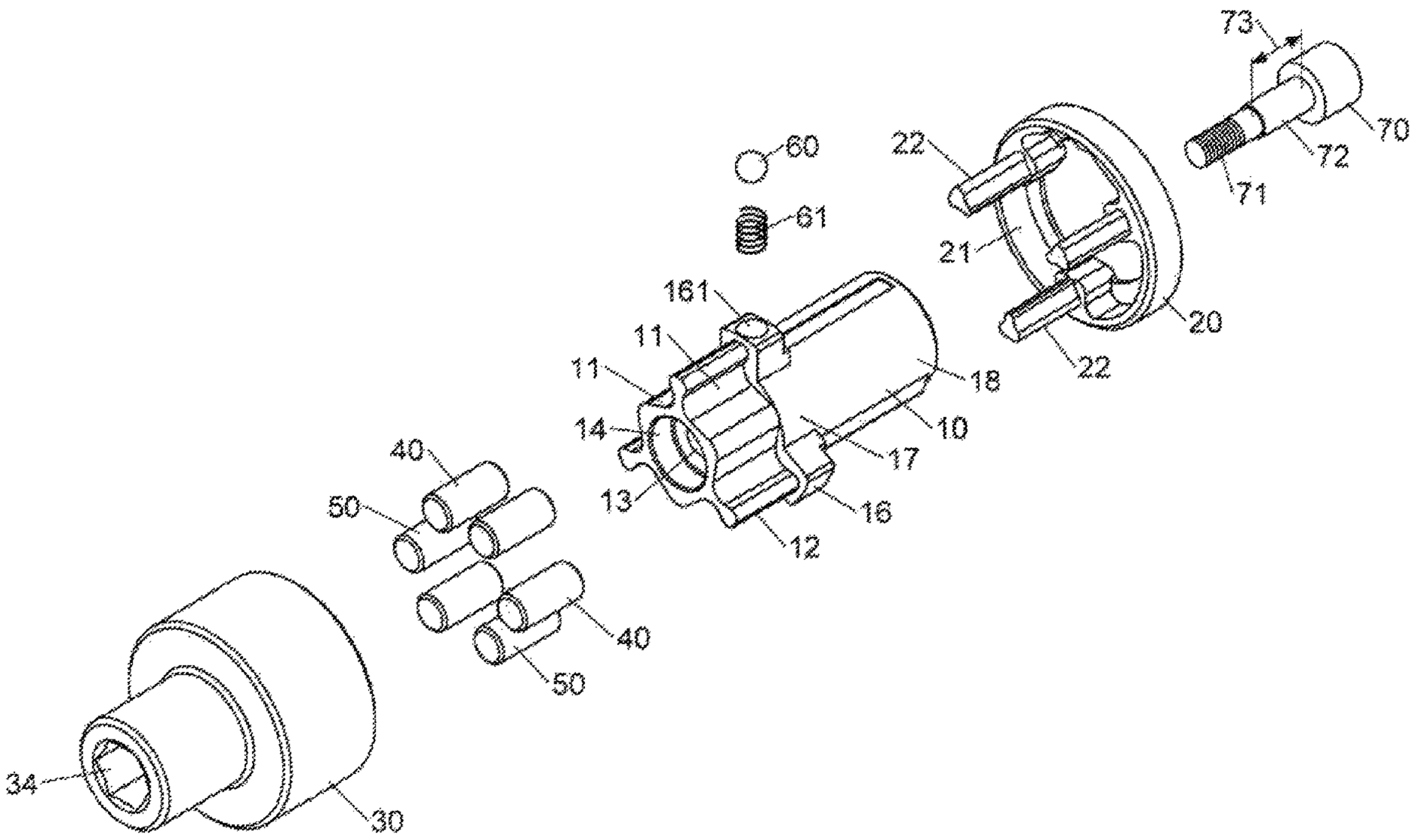
(57) **ABSTRACT**

A screwdriver rotation structure includes a main body, a control member, a driving member, multiple first rolls, and multiple second rolls. The main body has multiple first recesses and multiple first pillars. Each of the first recesses has a first face. Each of the first pillars has two second faces, two third faces, and a first pivot portion. The main body has multiple second pivot portions. The control member has multiple third pivot portions and multiple second pillars. Each of the second pillars has a fourth face, a fifth face, and a fourth pivot portion. The control member has a fifth pivot portion and a mounting portion. Each of the first rolls is received in one of the first recesses. Each of the second rolls is received in one of the first recesses.

**7 Claims, 8 Drawing Sheets**



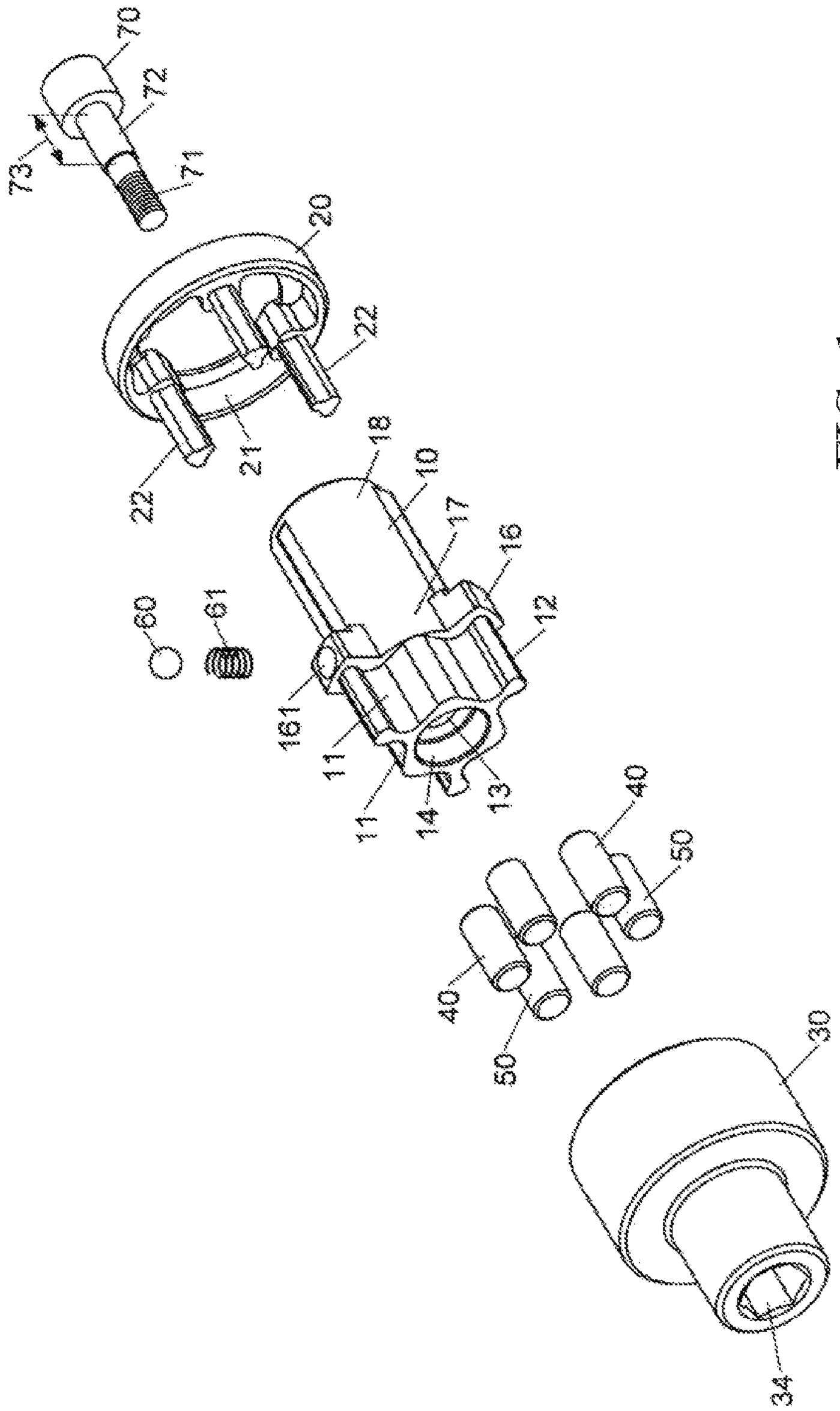

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FIG. 1

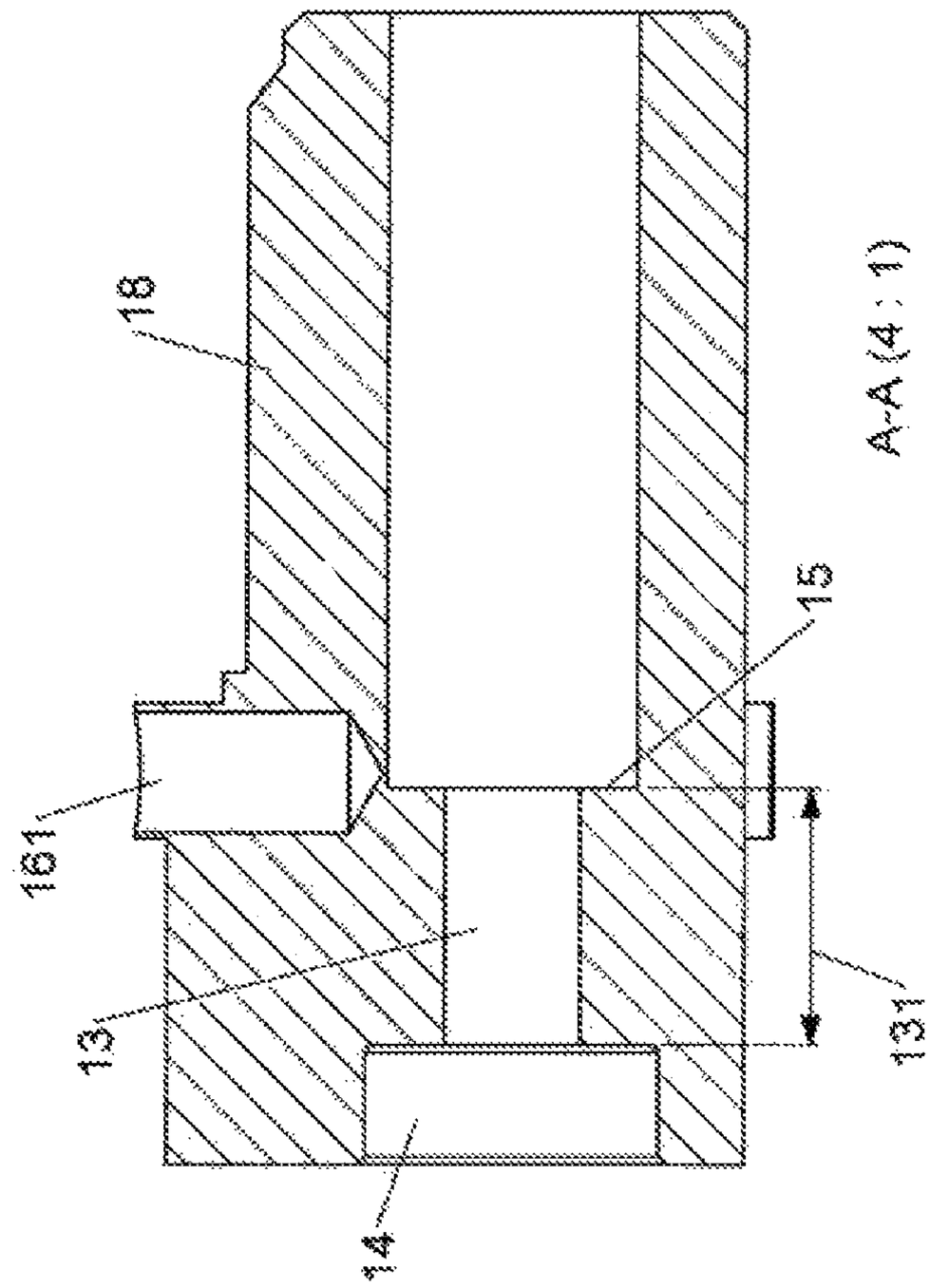


FIG. 3

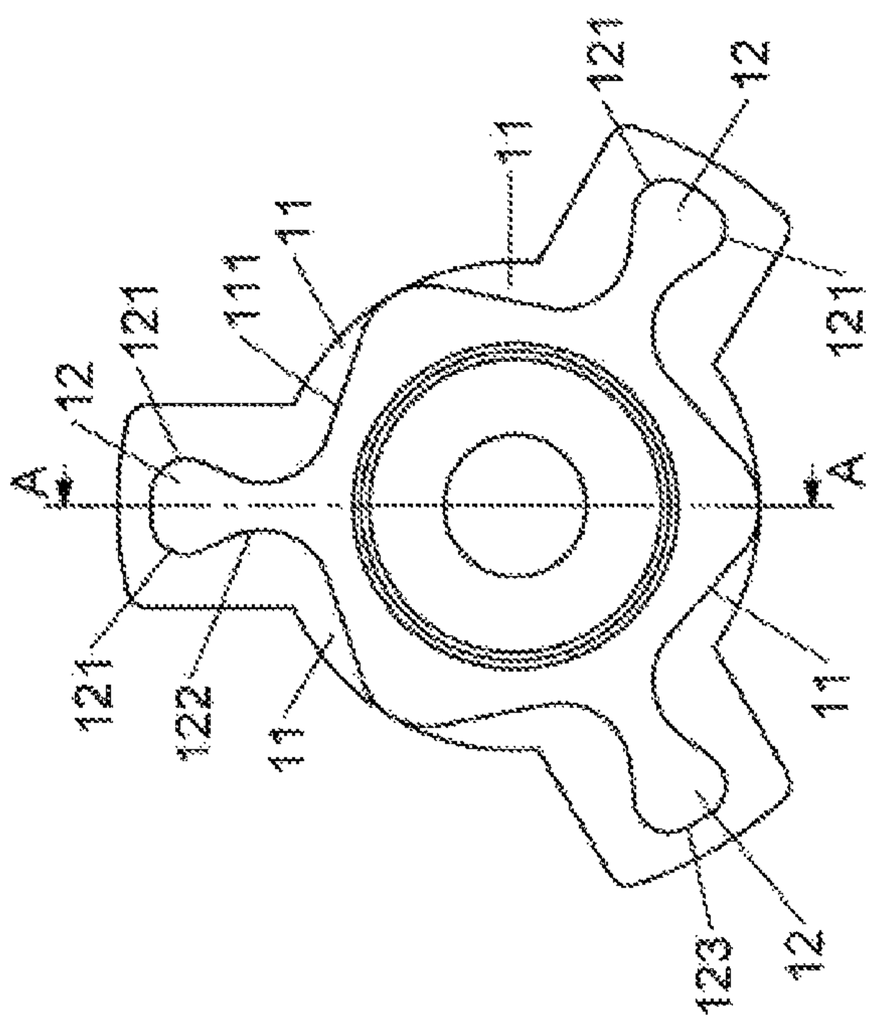


FIG. 2

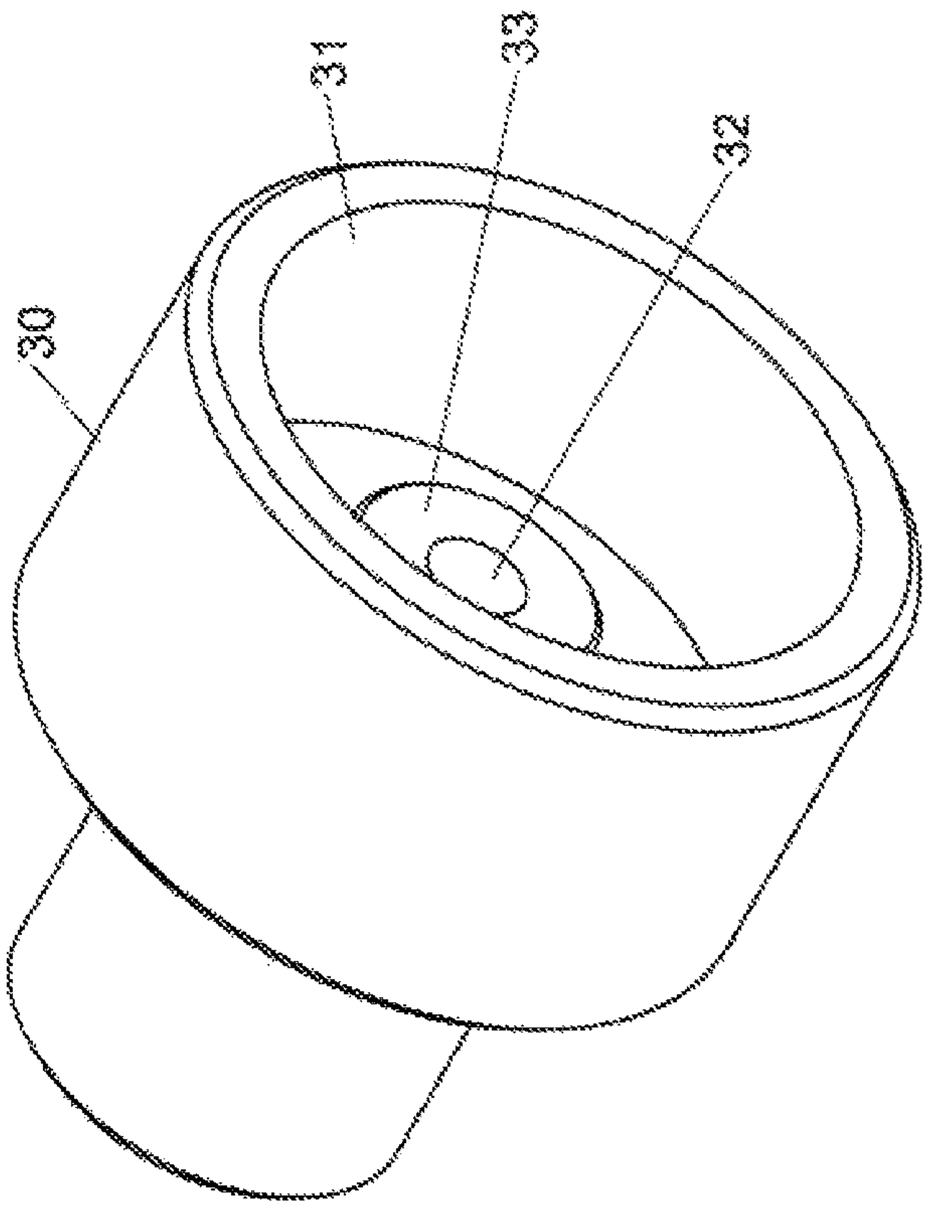


FIG. 3

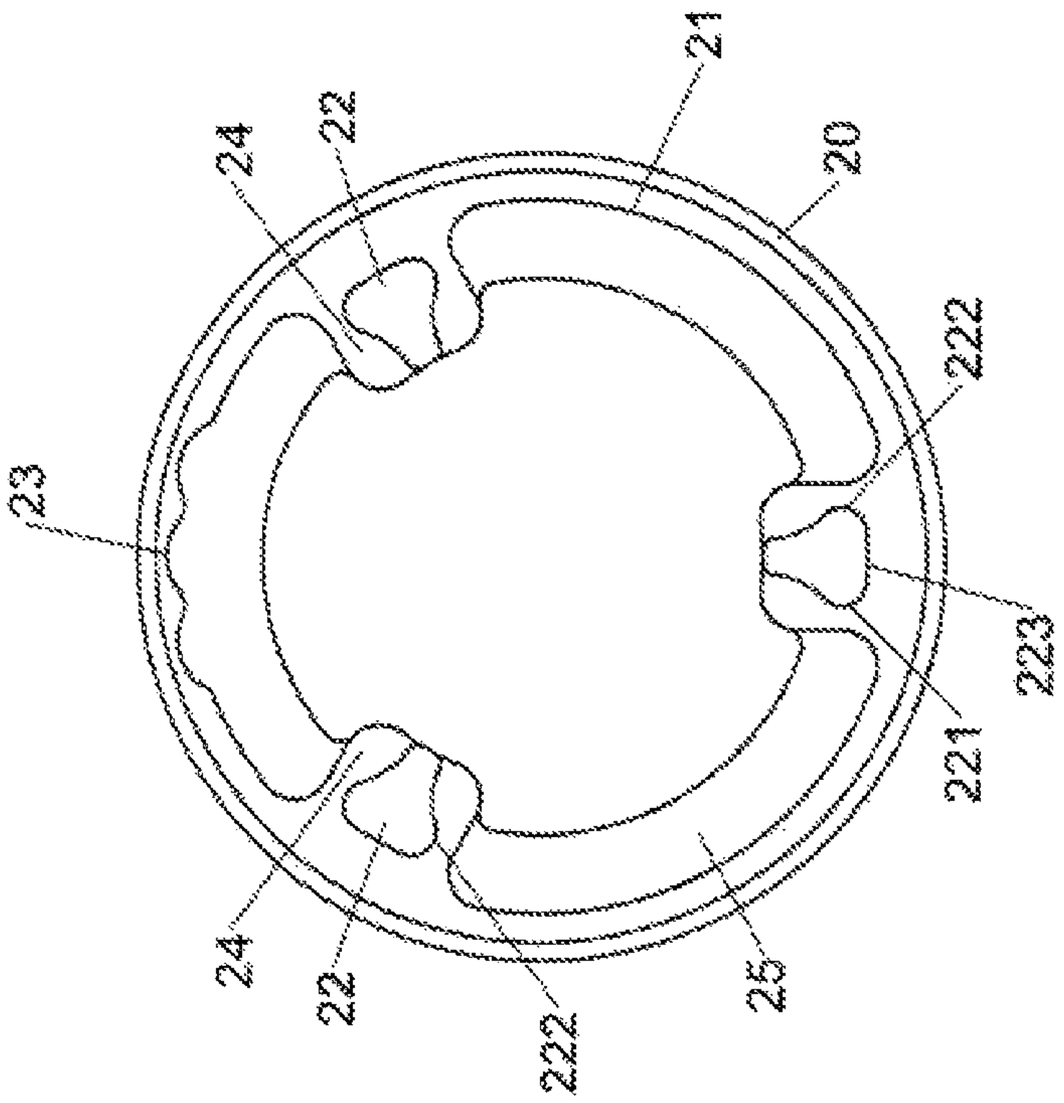


FIG. 4

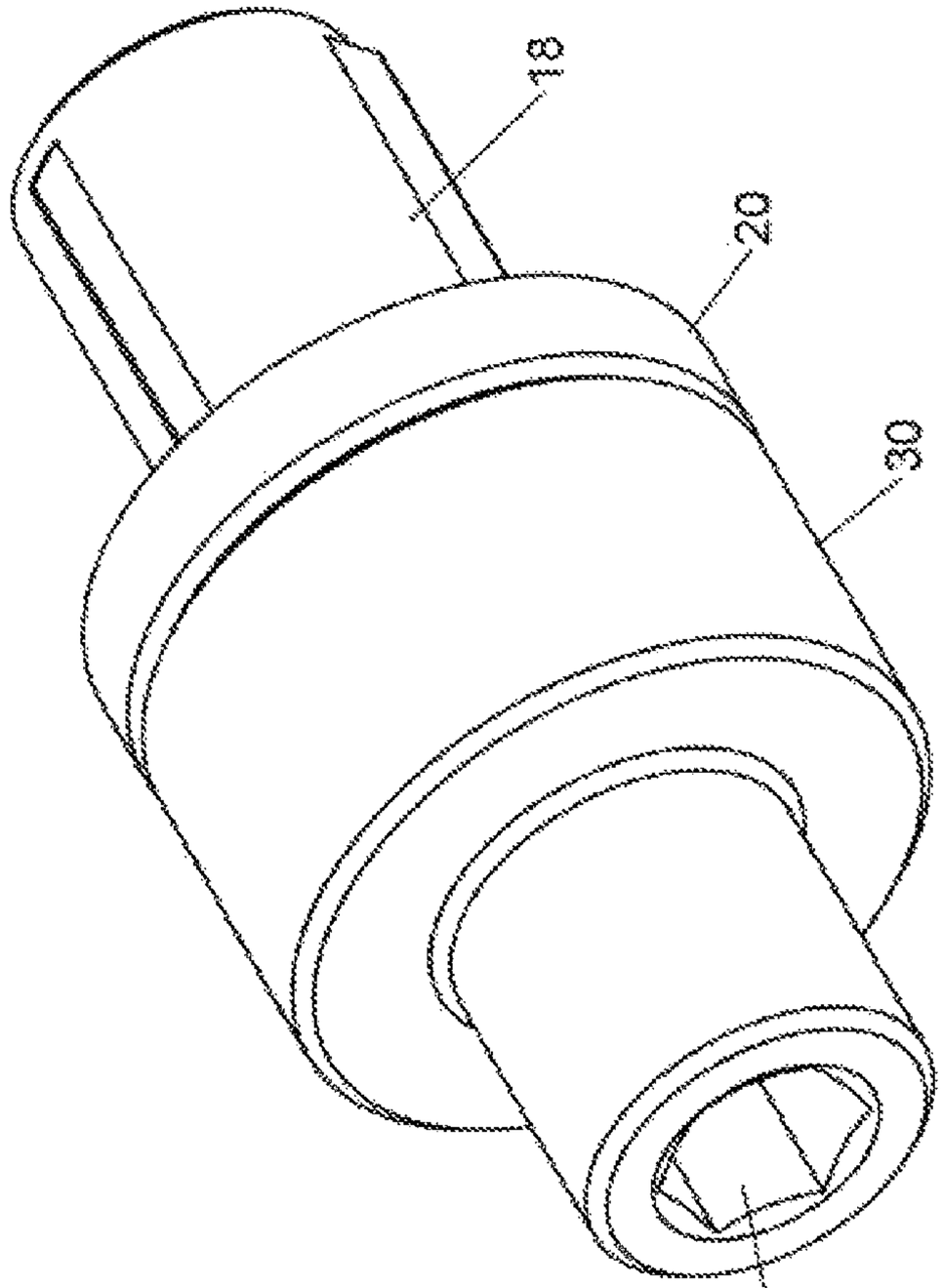


FIG. 6

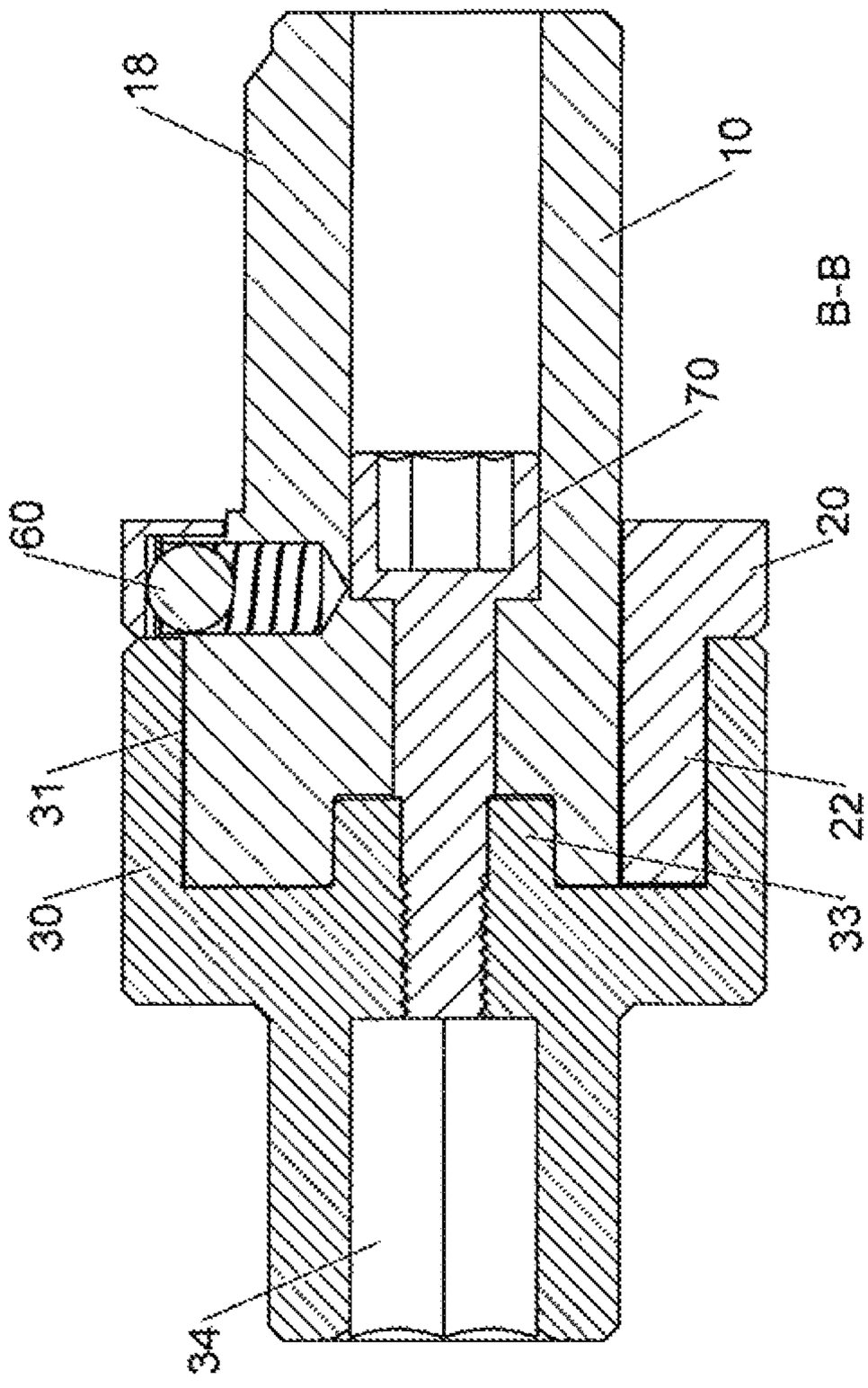


FIG. 8

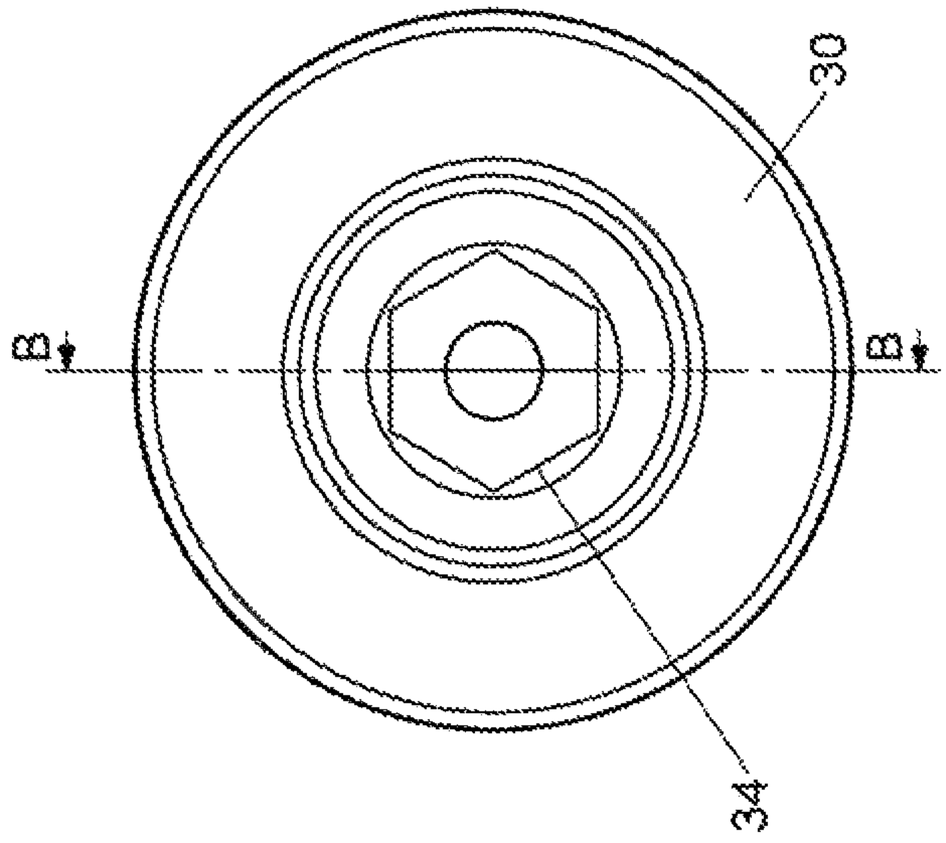


FIG. 7

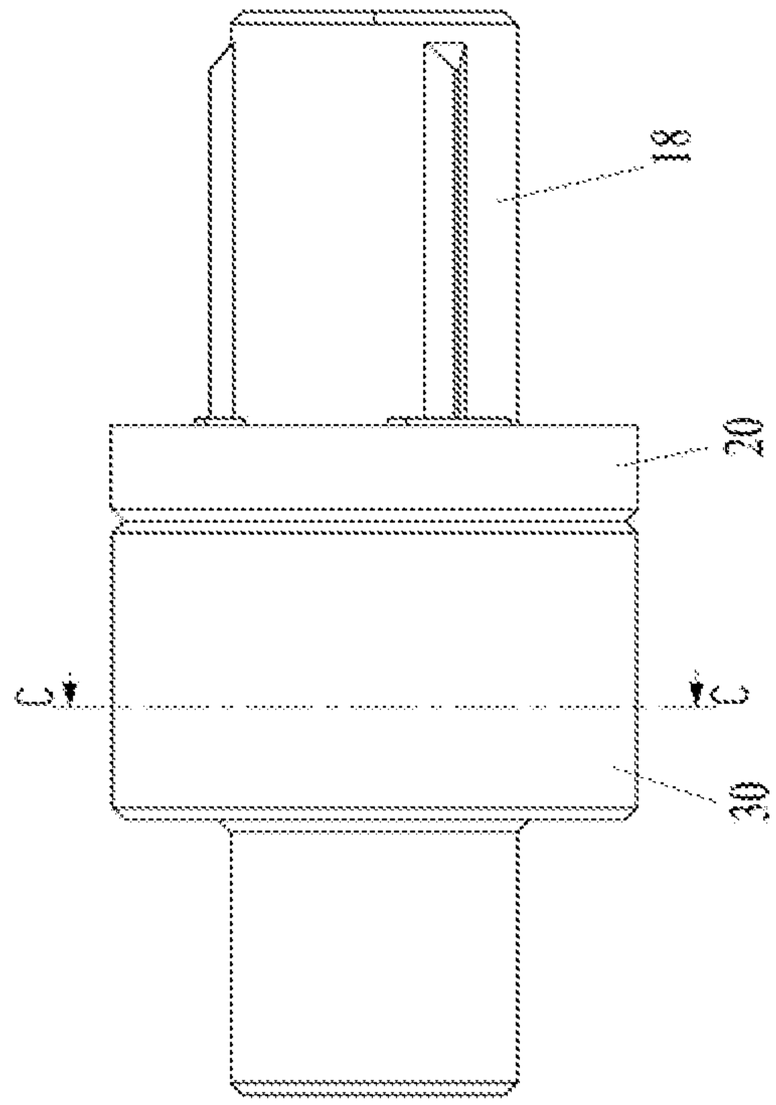


FIG. 9

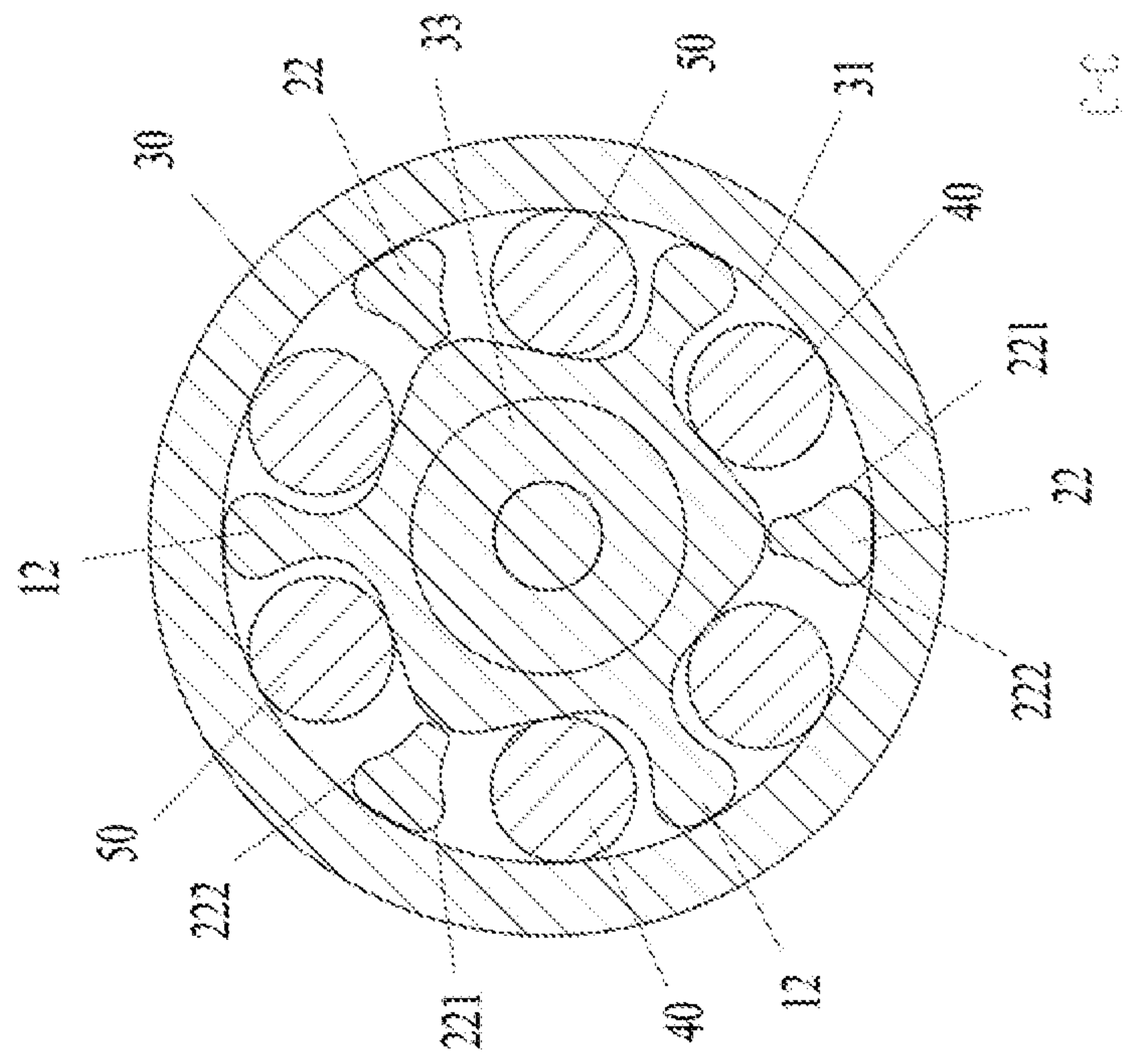


FIG. 10

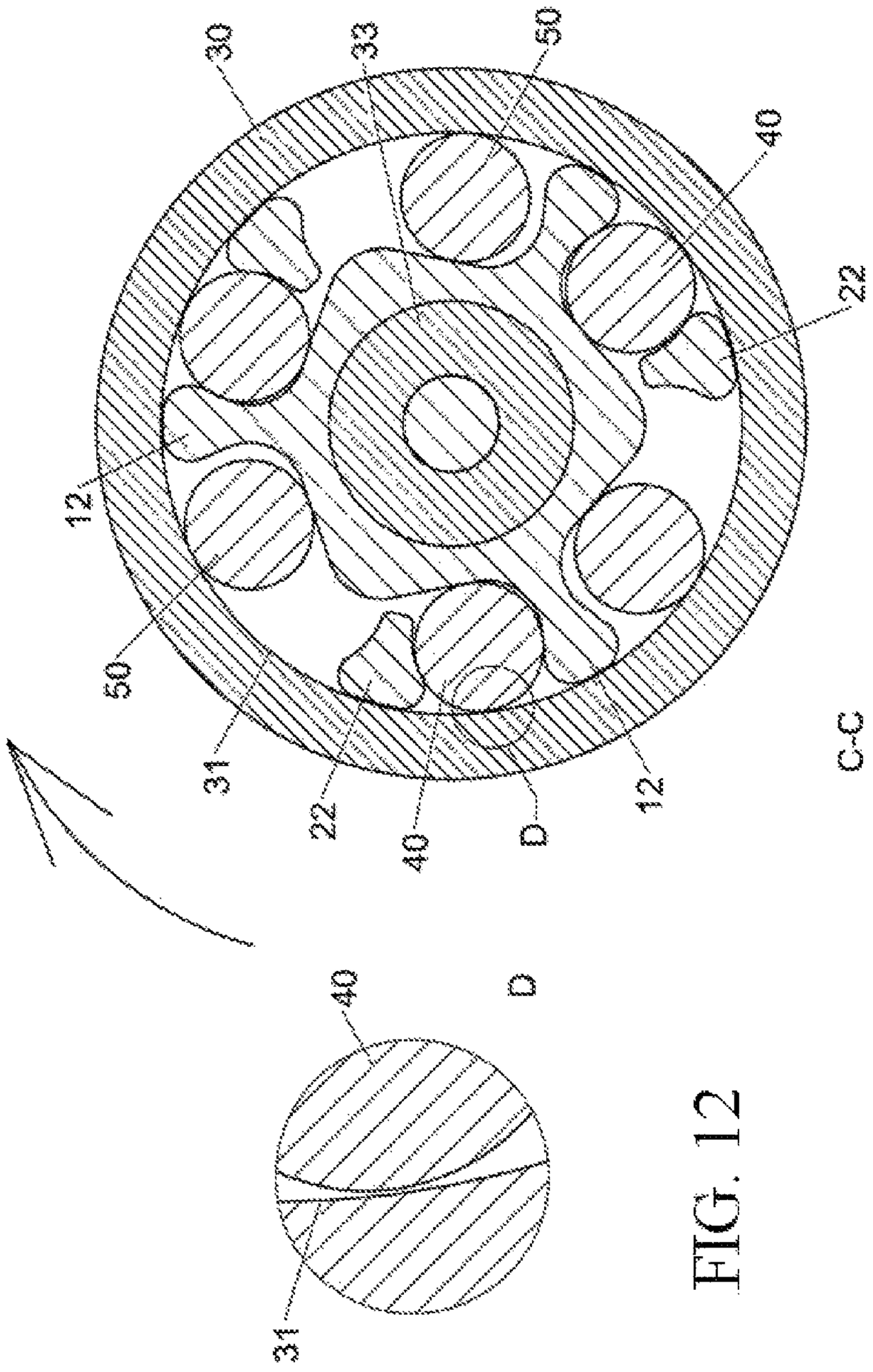


FIG. 11

FIG. 12

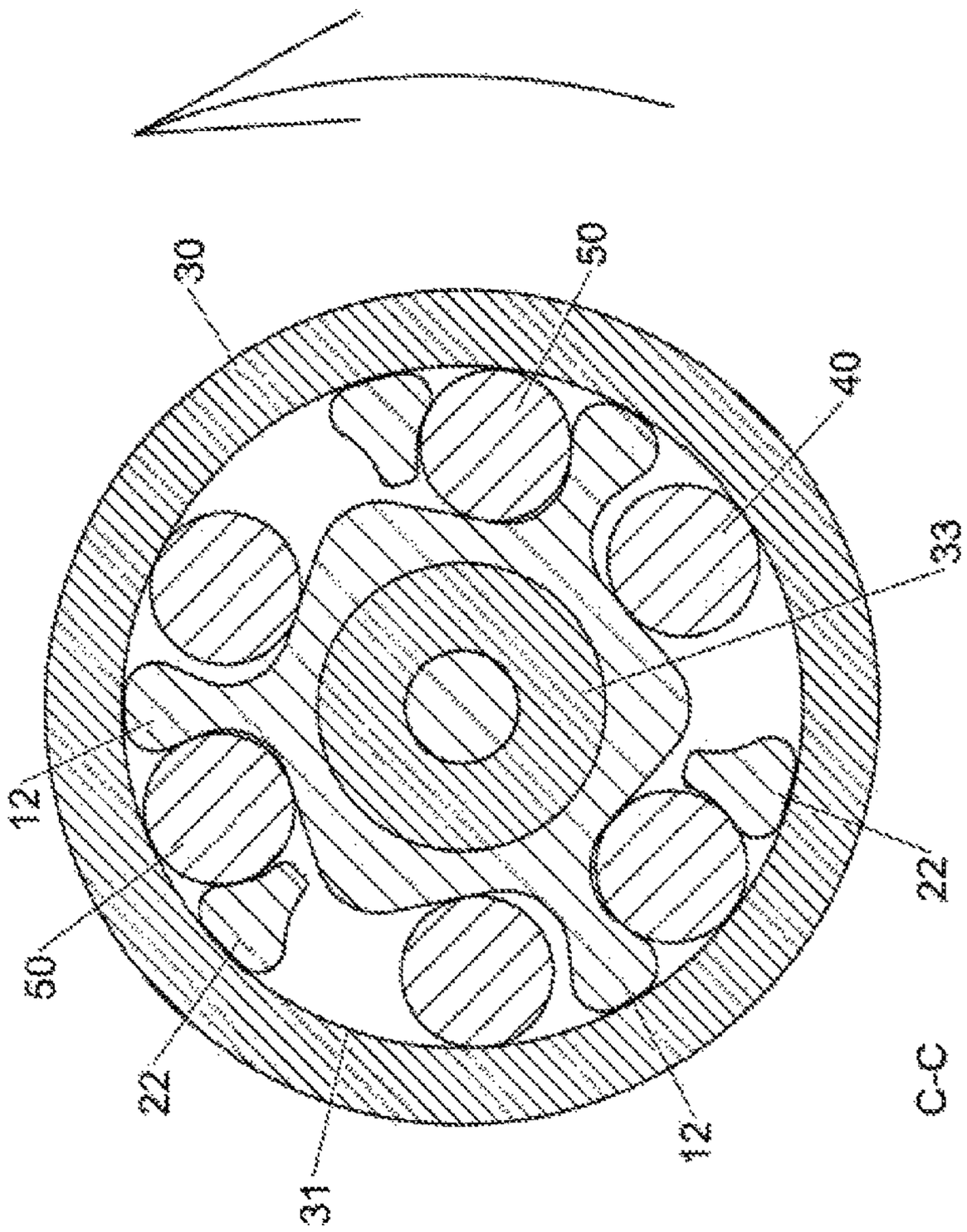


FIG. 13

# SCREWDRIVER ROTATION STRUCTURE

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention relates to a hand tool and, more particularly, to a screwdriver rotation structure.

### 2. Description of the Related Art

A conventional screwdriver rotation structure or reversible ratchet tool was disclosed in the applicant's U.S. Pat. No. 9,296,093, and comprises a ratchet body **102**, a cage member **108** fit and disposed within the ratchet body **102**, a reverser sleeve **116** sized to fit coaxially disposed within the cage member **108**, and a drive member **104** including an axle portion **105** sized to be rotatably contained by the reverser sleeve **116**. The ratchet body **102** includes an inner surface **118** defining an inner wall of a circular aperture **120**. The cage member **108** is mounted in the ratchet body **102** and includes an annular base **122** and a plurality of axial fingers **124** extending from one side of the annular base **122**. The annular base **122** is fit and coaxially disposed within the circular aperture **120**, wherein the fingers **124** substantially avoids contact with the inner surface **118**, to cooperatively define a cage aperture **126**. A tab **134** extends radially from the annular base **122** into the cage aperture **126**. A number of rollers **106** are constrained by the cage member **108** between an inner surface **118** of the ratchet body **102** and the drive member **104**. A pair of compression springs **110**, **111** are mounted between the reverser sleeve **116** and the cage member **108**. The characteristics of the present disclosure is in that, the drive member **104** and the reverser sleeve **116** are selectively constrained in either of a first angular displacement or a second angular displacement relative to each other.

The conventional screwdriver rotation structure has the following disadvantages.

1. When the drive member **104** and the reverser sleeve **116** are switched from the first angular displacement to the second angular displacement, the cage member **108** switches the rollers **106** from the first position to the second position corresponding to the drive member **104**. Thus, the cage member **108** only switches the rollers **106** relative to the drive member **104** to the first position or the second position. In such a manner, the rollers **106** is located at two positions relative to the drive member **104**, such that the drive member **104** and the reverser sleeve **116** are limited to the first angular displacement or the second angular displacement, and the drive member **104** is limited to rotate relative to the ratchet body **102** clockwise or counterclockwise. Thus, the conventional screwdriver rotation structure only has two rotation modes that are limited to a clockwise rotation or a counterclockwise rotation, thereby causing inconvenience to the user in operation of the conventional screwdriver rotation structure.

2. The conventional screwdriver rotation structure contains a direction switching structure having six elements, including the cage member **108**, the compression springs **110**, the compression springs **111**, the detent spring **112**, the braking ball **114**, and the reverser sleeve **116**, to move and position the rollers **106**, such that the direction switching structure is complicated, thereby increasing the cost of production.

## BRIEF SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a screwdriver rotation structure comprising a main body, a control member, a driving member, a plurality of first rolls, and a plurality of second rolls. The main body is provided with a plurality of first recesses and a plurality of first pillars. Each of the first recesses has a first face. Each of the first pillars has two second faces, two third faces, and a first pivot portion. The main body is provided with a plurality of second pivot portions. The control member is provided with a plurality of third pivot portions and a plurality of second pillars. Each of the second pillars has a fourth face, a fifth face, and a fourth pivot portion. The control member is provided with a fifth pivot portion and a mounting portion. Each of the first rolls is received in one of the first recesses. Each of the second rolls is received in one of the first recesses.

According to the primary advantage of the present invention, the control member is rotated on the main body, such that the driving member is driven by the main body to rotate in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions, to perform three operation modes, thereby facilitating the user operating the screwdriver rotation structure. In addition, when the second pillars are detached and spaced from the first rolls and the second rolls, the first rolls and the second rolls are located between the first face and the peripheral face of the fifth pivot portion, such that the control member is located at a position where the main body and the driving member cannot idle. Thus, the driving member is driven by the main body to rotate in the clockwise and anticlockwise directions.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

FIG. **1** is an exploded perspective view of a screwdriver rotation structure in accordance with the preferred embodiment of the present invention.

FIG. **2** is a front view of a main body of the screwdriver rotation structure in accordance with the preferred embodiment of the present invention.

FIG. **3** is a cross-sectional view of the main body of the screwdriver rotation structure taken along line A-A as shown in FIG. **2**.

FIG. **4** is a front view of a control member of the screwdriver rotation structure in accordance with the preferred embodiment of the present invention.

FIG. **5** is a perspective view of a driving member of the screwdriver rotation structure in accordance with the preferred embodiment of the present invention.

FIG. **6** is a perspective view of the screwdriver rotation structure in accordance with the preferred embodiment of the present invention.

FIG. **7** is a front view of the screwdriver rotation structure as shown in FIG. **6**.

FIG. **8** is a cross-sectional view of the main body of the screwdriver rotation structure taken along line B-B as shown in FIG. **7**.

FIG. **9** is a front view of the screwdriver rotation structure as shown in FIG. **6**.

FIG. **10** is a cross-sectional view of the main body of the screwdriver rotation structure taken along line C-C as shown in FIG. **9**, showing a first operation mode.

FIG. **11** is a schematic operational view of the screwdriver rotation structure as shown in FIG. **10**, showing a second operation mode.

FIG. **12** is a locally enlarged view of the screwdriver rotation structure taken along mark "D" as shown in FIG. **11**.

FIG. **13** is a schematic operational view of the screwdriver rotation structure as shown in FIG. **10**, showing a third operation mode.

## DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings and initially to FIGS. **1-10**, a screwdriver rotation structure in accordance with the preferred embodiment of the present invention comprises a main body **10**, a control member **20**, a driving member **30**, a plurality of first rolls **40**, a plurality of second rolls **50**, a ball **60**, an elastic member **61**, and a screw member **70**.

The main body **10** has a front end provided with a plurality of first recesses **11** and a plurality of first pillars **12**. The first recesses **11** and the first pillars **12** are spaced and arranged annularly about an axis of the main body **10**. The first recesses **11** are arranged between the first pillars **12**, and have a number doubling that of the first pillars **12**.

Each of the first recesses **11** has a first face **111** having an arcuate shape or a planar shape. Each of the first pillars **12** has two second faces **121** which are distant from the first face **111** and are arranged symmetrically. Each of the two second faces **121** has an arcuate shape. Each of the first pillars **12** has two third faces **122** which are arranged symmetrically. Each of the two third faces **122** is located at a connection of each of the first pillars **12** and each of the first recesses **11**. Each of the two third faces **122** connects each of the two second faces **121** and is located between each of the two second faces **121** and the first face **111**. Each of the two third faces **122** has an arcuate shape. Each of the first pillars **12** is provided with a first pivot portion **123** which is located between the two second faces **121**. The first pivot portion **123** of each of the first pillars **12** has an arcuate face having an axis coinciding with that of the main body **10**.

The main body **10** has an interior provided with a through hole **13** which has a circular shape and has a first length **131**. The through hole **13** has a first end provided with a first fitting portion **14** and a second end provided with a first abutting portion **15**. The first fitting portion **14** has an opening located at a front end face of the main body **10**. The first fitting portion **14** is connected to the through hole **13** and has a diameter greater than that of the through hole **13**. The through hole **13** is located between the first fitting portion **14** and the first abutting portion **15**. The first abutting portion **15** has a planar shape. The main body **10** is provided with a plurality of second pivot portions **16** located at a middle thereof. The second pivot portions **16** are spaced and arranged annularly about the axis of the main body **10**. Each of the first pillars **12** extends from each of the second pivot portions **16** toward the front end face of the main body **10**. The second pivot portions **16** have a number equal to that of the first pillars **12**. Each of the second pivot portions **16** is a protruding block and has a diameter greater than that of the first pivot portion **123**. The second pivot portions **16** have an axis coinciding with that of the main body **10**. One of the second pivot portions **16** is provided with a receiving space **161** having a circular shape. The main body **10** is provided with a plurality of second recesses **17** each of which is arranged between two of the second pivot portions **16** and aligns with two of the first recesses **11** respectively. The second pivot portions **16** and the second recesses **17** are spaced and arranged annularly.



The control member **20** is pivotally mounted on and rotatable relative to the main body **10**. The control member **20** is provided with a plurality of third pivot portions **21** which are pivotally mounted on and rotatable relative to the second pivot portions **16**. The third pivot portions **21** are spaced and arranged annularly, and have a number equal to that of the first pillars **12**. Each of the third pivot portions **21** is a groove having an opening facing the first recesses **11**. The control member **20** is provided with a plurality of second pillars **22** each movable between two of the first recesses **11**. Each of the second pillars **22** is arranged between two of the third pivot portions **21**. The third pivot portions **21** and the second pillars **22** are spaced and arranged annularly about an axis of the control member **20**. The second pillars **22** have a number equal to that of the first pillars **12**.

Each of the second pillars **22** has a fourth face **221**, a fifth face **222**, and a fourth pivot portion **223**. The fourth face **221** is distant from the fifth face **222**. The fourth face **221** and the fifth face **222** are arranged symmetrically relative to each of the second pillars **22** and have a convex shape. The fourth pivot portion **223** is located between the fourth face **221** and the fifth face **222**. The fourth pivot portion **223** has an arcuate shape and has a diameter equal to that of the first pivot portion **123**.

The control member **20** is provided with a plurality of positioning grooves **23**, with the receiving space **161** aligning with one of the positioning grooves **23** when the control member **20** is rotated relative to the main body **10**. The control member **20** has three positioning grooves **23**. The positioning grooves **23** are spaced and connected to one of the third pivot portions **21**. The control member **20** is provided with a plurality of projections **24** received in the second recesses **17**, such that the projections **24** and the second recesses **17** restrict the maximum rotation degree of the control member **20** relative to the main body **10**. Each of the projections **24** is located between two of the third pivot portions **21**. Each of the second pillars **22** extends from each of the projections **24** toward the first recesses **11**. The projections **24** have a number equal to that of the second pillars **22**. The control member **20** is provided with a second abutting portion **25** abutting the second pivot portions **16**.

The driving member **30** is pivotally mounted on the main body **10**. The driving member **30** has a first end provided with a fifth pivot portion **31** and a second end provided with a mounting portion **34**. The fifth pivot portion **31** has a circular shape and aligns with the first recesses **11**. The first pillars **12** are pivotally mounted in the fifth pivot portion **31**. The fifth pivot portion **31** partially receives the main body **10** and is pivotally mounted on the first pivot portion **123** and the fourth pivot portion **223**. The fifth pivot portion **31** has an opening facing the control member **20**. The driving member **30** is provided with a first screw portion **32** connected to the fifth pivot portion **31** and aligning with the through hole **13**. The first screw portion **32** is an internal thread. The driving member **30** is provided with a second fitting portion **33** pivotally mounted in the first fitting portion **14**. The second fitting portion **33** has a cylindrical shape and protrudes from a bottom of the fifth pivot portion **31**. The first screw portion **32** is formed in the second fitting portion **33**. The mounting portion **34** is distant from the fifth pivot portion **31** and is connected to the first screw portion **32**. The first screw portion **32** is located between the fifth pivot portion **31** and the mounting portion **34**. The mounting portion **34** is a polygonal recess.

Each of the first rolls **40** is received in one of the first recesses **11**, and pivotally arranged between one of the first pillars **12** and one of the second pillars **22**. The first rolls **40** are pivotally mounted in the fifth pivot portion **31** and have a number equal to that of the first pillars **12**. Each of the first rolls **40** has a cylindrical shape and rests between the first face **111** and a peripheral face of the fifth pivot portion **31**. Each of the first rolls **40** is movable between one of the two second faces **121** and the fourth face **221**.

Each of the second rolls **50** is received in one of the first recesses **11**, and pivotally arranged between one of the first pillars **12** and one of the second pillars **22**. Each of the first rolls **40** and each of the second rolls **50** are arranged between two of the first pillars **12**. Each of the second pillars **22** is arranged between one of the first rolls **40** and one of the second rolls **50**. The second rolls **50** are pivotally mounted in the fifth pivot portion **31**. The first pillars **12**, the first rolls **40**, the second pillars **22**, and the second rolls **50** are spaced and arranged annularly in the fifth pivot portion **31**. Each of the second rolls **50** has a cylindrical shape and rests between the first face **111** and the peripheral face of the fifth pivot portion **31**. Each of the second rolls **50** is movable between one of the two second faces **121** and the fifth face **222**. Each of the second rolls **50** has a structure the same as that of each of the first rolls **40**. The second rolls **50** have a number equal to that of the first pillars **12** and that of the first rolls **40**.

When the second pillars **22** are spaced from the first rolls **40** and the second rolls **50**, the main body **10** rotates the driving member **30** clockwise and anticlockwise. When the control member **20** is rotated relative to the main body **10** to press the first rolls **40** or the second rolls **50**, the main body **10** rotates the driving member **30** clockwise or anticlockwise. Thus, the screwdriver rotation structure includes three rotating modes.

When the control member **20** is rotated relative to the main body **10** anticlockwise, the fourth face **221** is moved to press each of the first rolls **40**, such that each of the first rolls **40** is limited by each of the second pillars **22** and rests on one of the two second faces **121**, such that each of the first rolls **40** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween. In such a manner, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10** to drive and rotate the driving member **30** clockwise. On the contrary, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles anticlockwise.

When the control member **20** is rotated relative to the main body **10** clockwise, the fifth face **222** is moved to press each of the second rolls **50**, such that each of the second rolls **50** is limited by each of the second pillars **22** and rests on one of the two second faces **121**, such that each of the second rolls **50** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween. In such a manner, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10** to drive and rotate the driving member **30** anticlockwise. On the contrary, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles clockwise.

The ball **60** is received in the receiving space **161** and positioned in one of the positioning grooves **23**. Thus, when the control member **20** is rotated relative to the main body **10**, the ball **60** is positioned in one of the positioning grooves **23**, such that the second pillars **22** presses the first rolls **40** (see FIG. **11**), or presses the second rolls **50** (see FIG. **13**), or detach from the first rolls **40** and the second rolls **50** (see FIG. **10**). In such a manner, the driving member **30** is driven by the main body **10** in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions.

The elastic member **61** is received in the receiving space **161** and biased between the receiving space **161** and the ball **60**, such that the ball **60** partially protrudes from the receiving space **161**. The elastic member **61** is preferably a spring structure.

The screw member **70** extends through the through hole **13** and has a first end provided with a second screw portion **71** and a second end provided with a head. The second screw portion **71** is an external thread that is screwed with the first screw portion **32**, such that the main body **10** and the driving member **30** are connected without detachment. The screw member **70** has a shank **72** extending through the through hole **13**. The shank **72** is a round pole (or rod) and is located between the head and the second screw portion **71**. The shank **72** has a second length **73** that is slightly greater than the first length **131**. The head of the screw member **70** rests on the first abutting portion **15**.

In the preferred embodiment of the present invention, the main body **10** has six first recesses **11** and three first pillars **12**, and the control member **20** has three third pivot portions **21** and three second pillars **22**.

In the preferred embodiment of the present invention, the main body **10** has a rear end provided with an assembly portion **18** for mounting a handle.

In the preferred embodiment of the present invention, the driving member **30** is pivotally mounted on the main body **10** and the control member **20**.

In the preferred embodiment of the present invention, the screwdriver rotation structure has three first rolls **40**.

In the preferred embodiment of the present invention, the screwdriver rotation structure has three second rolls **50**.

In another preferred embodiment of the present invention, each of the first rolls **40** is a round bead. Each of the first recesses **11** is provided with two of the first rolls **40** that are arranged linearly. Each of the second rolls **50** is a round bead. Each of the first recesses **11** is provided with two of the second rolls **50** that are arranged linearly.

In assembly, the control member **20** is pivotally mounted on and rotatable relative to the main body **10**. The driving member **30** is pivotally mounted on the main body **10**. The first pillars **12** are pivotally mounted in the fifth pivot portion **31**. The second pillars **22** are pivotally mounted in the fifth pivot portion **31**. The first rolls **40** and the second rolls **50** are received in the first recesses **11** and the fifth pivot portion **31**. The ball **60** and the elastic member **61** are received in the receiving space **161**. The ball **60** partially protrudes from the receiving space **161** and is positioned in one of the positioning grooves **23**, such that the control member **20** is located at three positions where the driving member **30** is driven by the main body **10** to rotate in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions. The screw member **70** extends through the through hole **13** and is screwed with the first screw portion **32**, such that the main body **10** and the driving member **30** are connected pivotally.

Referring to FIGS. **9** and **10** with reference to FIGS. **1-8**, when the ball **60** is positioned in one of the positioning grooves **23**, the second pillars **22** are detached and spaced from the first rolls **40** and the second rolls **50**, such that the driving member **30** is driven by the main body **10** to rotate in the clockwise and anticlockwise directions.

Referring to FIGS. **11** and **12** with reference to FIGS. **1-10**, when the control member **20** is rotated relative to the main body **10** anticlockwise, the fourth face **221** is moved to press each of the first rolls **40**, such that each of the first rolls **40** is limited by each of the second pillars **22** and rests on one of the two second faces **121** and one of the two third faces **122**, such that each of the first rolls **40** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween as shown in FIG. **12**. In such a manner, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10** to drive and rotate the driving member **30** clockwise. On the contrary, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles anticlockwise.

Referring to FIG. **13** with reference to FIGS. **1-12**, when the control member **20** is rotated relative to the main body **10** clockwise, the fifth face **222** is moved to press each of the second rolls **50**, such that each of the second rolls **50** is limited by each of the second pillars **22** and rests on one of the two second faces **121** and one of the two third faces **122**, such that each of the second rolls **50** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween. In such a manner, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10** to drive and rotate the driving member **30** anticlockwise. On the contrary, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles clockwise.

Accordingly, the screwdriver rotation structure of the present invention has the following advantages.

1. The control member **20** is rotated on the main body **10**, such that the driving member **30** is driven by the main body **10** to rotate in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions, to perform three operation modes, thereby facilitating the user operating the screwdriver rotation structure.

2. When the second pillars **22** are detached and spaced from the first rolls **40** and the second rolls **50**, the first rolls **40** and the second rolls **50** are located between the first face **111** and the peripheral face of the fifth pivot portion **31**, such that the control member **20** is located at a position where the main body **10** and the driving member **30** cannot idle. Thus, the driving member **30** is driven by the main body **10** to rotate in the clockwise and anticlockwise directions.

3. When the control member **20** is rotated relative to the main body **10** anticlockwise, the fourth face **221** is moved to press each of the first rolls **40**, such that each of the first rolls **40** is limited by each of the second pillars **22** and rests on one of the two second faces **121**, such that each of the first rolls **40** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween. In such a manner, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10** to drive and rotate the driving member **30** clockwise. On the contrary, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles anticlockwise and cannot rotate the driving member **30**.

4. When the control member **20** is rotated relative to the main body **10** clockwise, the fifth face **222** is moved to press each of the second rolls **50**, such that each of the second rolls **50** is limited by each of the second pillars **22** and rests on one of the two second faces **121**, such that each of the second rolls **50** is detached from the peripheral face of the fifth pivot portion **31** with a gap being formed therebetween. In such a manner, when the main body **10** is rotated anticlockwise, the first rolls **40** are driven by the main body **10** to drive and rotate the driving member **30** anticlockwise. On the contrary, when the main body **10** is rotated clockwise, the second rolls **50** are driven by the main body **10**, but cannot drive the driving member **30**, such that the main body **10** idles clockwise and cannot rotate the driving member **30**.

5. The ball **60** is positioned in one of the positioning grooves **23**, such that the control member **20** is located at three positions where the driving member **30** is driven by the main body **10** to rotate in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions.

Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the scope of the invention.

The invention claimed is:

**1**. A screwdriver rotation structure comprising:

a main body, a control member, a driving member, a plurality of first rolls, a plurality of second rolls, a ball, an elastic member, and a screw member;

wherein:

the main body has a front end provided with a plurality of first recesses and a plurality of first pillars;

the first recesses are arranged between the first pillars, and have a number doubling that of the first pillars;

each of the first recesses has a first face having an arcuate shape or a planar shape;

each of the first pillars has two second faces;

each of the two second faces has an arcuate shape;

each of the first pillars has two third faces;

each of the two third faces is located at a connection of each of the first pillars and each of the first recesses;

each of the two third faces connects each of the two second faces and is located between each of the two second faces and the first face;

each of the two third faces has an arcuate shape;

each of the first pillars is provided with a first pivot portion which is located between the two second faces;

the first pivot portion of each of the first pillars has an arcuate face;

the main body has an interior provided with a through hole which has a circular shape and has a first length;

the through hole has a first end provided with a first fitting portion and a second end provided with a first abutting portion;

the first fitting portion is connected to the through hole and has a diameter greater than that of the through hole;

the through hole is located between the first fitting portion and the first abutting portion;

the first abutting portion has a planar shape;

the main body is provided with a plurality of second pivot portions;

each of the first pillars extends from each of the second pivot portions;

the second pivot portions have a number equal to that of the first pillars;

each of the second pivot portions is a protruding block and has a diameter greater than that of the first pivot portion;

one of the second pivot portions is provided with a receiving space having a circular shape;

the main body is provided with a plurality of second recesses each of which is arranged between two of the second pivot portions and aligns with two of the first recesses respectively;

the control member is pivotally mounted on and rotatable relative to the main body;

the control member is provided with a plurality of third pivot portions which are pivotally mounted on and rotatable relative to the second pivot portions;

the third pivot portions have a number equal to that of the first pillars;

each of the third pivot portions is a groove;

the control member is provided with a plurality of second pillars each movable between two of the first recesses;

each of the second pillars is arranged between two of the third pivot portions;

the second pillars have a number equal to that of the first pillars;

each of the second pillars has a fourth face, a fifth face, and a fourth pivot portion;

the fourth face and the fifth face are arranged symmetrically relative to each of the second pillars and have a convex shape;

the fourth pivot portion is located between the fourth face and the fifth face;

the fourth pivot portion has an arcuate shape and has a diameter equal to that of the first pivot portion;

the control member is provided with a plurality of positioning grooves, with the receiving space aligning with one of the positioning grooves when the control member is rotated relative to the main body;

the positioning grooves are connected to one of the third pivot portions;

the control member is provided with a plurality of projections received in the second recesses;

each of the projections is located between two of the third pivot portions;

each of the second pillars extends from each of the projections;

the projections have a number equal to that of the second pillars;

the control member is provided with a second abutting portion abutting the second pivot portions;

the driving member is pivotally mounted on the main body;

the driving member has a first end provided with a fifth pivot portion and a second end provided with a mounting portion;

the fifth pivot portion has a circular shape and aligns with the first recesses;

the first pillars are pivotally mounted in the fifth pivot portion;

the fifth pivot portion partially receives the main body and is pivotally mounted on the first pivot portion and the fourth pivot portion;

the driving member is provided with a first screw portion connected to the fifth pivot portion and aligning with the through hole;

the first screw portion is an internal thread;

the driving member is provided with a second fitting portion pivotally mounted in the first fitting portion;

the second fitting portion has a cylindrical shape and protrudes from a bottom of the fifth pivot portion;

the first screw portion is formed in the second fitting portion;

the mounting portion is connected to the first screw portion;

the first screw portion is located between the fifth pivot portion and the mounting portion;

the mounting portion is a polygonal recess;

each of the first rolls is received in one of the first recesses, and pivotally arranged between one of the first pillars and one of the second pillars;

the first rolls are pivotally mounted in the fifth pivot portion and have a number equal to that of the first pillars;

each of the first rolls has a cylindrical shape and rests between the first face and a peripheral face of the fifth pivot portion;

each of the first rolls is movable between one of the two second faces and the fourth face;

each of the second rolls is received in one of the first recesses, and pivotally arranged between one of the first pillars and one of the second pillars;

each of the first rolls and each of the second rolls are arranged between two of the first pillars;

each of the second pillars is arranged between one of the first rolls and one of the second rolls;

the second rolls are pivotally mounted in the fifth pivot portion;

the first pillars, the first rolls, the second pillars, and the second rolls are spaced and arranged annularly in the fifth pivot portion;

each of the second rolls has a cylindrical shape and rests between the first face and the peripheral face of the fifth pivot portion;

each of the second rolls is movable between one of the two second faces and the fifth face;

the second rolls have a number equal to that of the first pillars and that of the first rolls;

when the second pillars are spaced from the first rolls and the second rolls, the main body rotates the driving member clockwise and anticlockwise;

when the control member is rotated relative to the main body to press the first rolls or the second rolls, the main body rotates the driving member clockwise or anticlockwise;

when the control member is rotated relative to the main body anticlockwise, the fourth face is moved to press each of the first rolls, such that each of the first rolls is limited by each of the second pillars and rests on one of the two second faces, such that each of the first rolls is detached from the peripheral face of the fifth pivot portion with a gap being formed therebetween;

when the main body is rotated clockwise, the second rolls are driven by the main body to drive and rotate the driving member clockwise;

when the main body is rotated anticlockwise, the first rolls are driven by the main body, but cannot drive the driving member, such that the main body idles anticlockwise;

when the control member is rotated relative to the main body clockwise, the fifth face is moved to press each of the second rolls, such that each of the second rolls is limited by each of the second pillars and rests on one of the two second faces, such that each of the second rolls is detached from the peripheral face of the fifth pivot portion with a gap being formed therebetween;

when the main body is rotated anticlockwise, the first rolls are driven by the main body to drive and rotate the driving member anticlockwise;

when the main body is rotated clockwise, the second rolls are driven by the main body, but cannot drive the driving member, such that the main body idles clockwise;

the ball is received in the receiving space and positioned in one of the positioning grooves;

when the control member is rotated relative to the main body, the ball is positioned in one of the positioning grooves, such that the second pillars presses the first rolls, or presses the second rolls, or detach from the first rolls and the second rolls, such that the driving member is driven by the main body in the anticlockwise direction only, in the clockwise direction only, and in the clockwise and anticlockwise directions;

the elastic member is received in the receiving space and biased between the receiving space and the ball, such that the ball partially protrudes from the receiving space;

the screw member extends through the through hole and has a first end provided with a second screw portion and a second end provided with a head;

the second screw portion is an external thread that is screwed with the first screw portion;

the screw member has a shank extending through the through hole;

the shank is a round pole and is located between the head and the second screw portion;

the shank has a second length greater than the first length; and

the head of the screw member rests on the first abutting portion.

**2**. The screwdriver rotation structure as claimed in claim **1**, wherein the main body has six first recesses and three first pillars, and the control member has three third pivot portions and three second pillars.

**3**. The screwdriver rotation structure as claimed in claim **1**, wherein the main body has a rear end provided with an assembly portion.

**4**. The screwdriver rotation structure as claimed in claim **1**, wherein the driving member is pivotally mounted on the main body and the control member.

**5**. The screwdriver rotation structure as claimed in claim **1**, wherein the screwdriver rotation structure has three first rolls.

**6**. The screwdriver rotation structure as claimed in claim **1**, wherein the screwdriver rotation structure has three second rolls.

**7**. The screwdriver rotation structure as claimed in claim **1**, wherein:

each of the first rolls is a round bead;

each of the first recesses is provided with two of the first rolls that are arranged linearly;

each of the second rolls is a round bead; and

each of the first recesses is provided with two of the second rolls that are arranged linearly.

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